

CLAIMS

What is claimed is:

1. A method of changing the dynamic range of an original image to more closely
2 match the dynamic range of the medium used for a reproduction, comprising:
modifying the contrast differences between different areas of the
4 original image as a function of the distance between the different areas.
2. The method of claim 1 where the contrast differences are preserved for large
2 distances between the different areas and the contrast differences are enhanced for
small distances between the different areas.
3. The method of claim 1 where the contrast differences are reduced for small
2 distances between the different areas.
4. The method of claim 1 where very small contrast differences are substantially
eliminated only for small distances between the different areas.
5. A method of changing the dynamic range of an original image to more closely
2 match the dynamic range of the medium used for a reproduction, comprising:
modifying the small contrast differences between different areas of the
4 original image as a function of the distance between the different areas;
limiting the maximum contrast differences between different areas of
6 the original image, where the limit is a function of the distance between the
different areas.

6. The method of claim 5 where the small contrast differences are preserved for large
2 distances between the different areas and the small contrast differences are
enhanced for small distances between the different areas.
7. The method of claim 5 where the small contrast differences are reduced for small
2 distances between the different areas.
8. The method of claim 5 where very small contrast differences are eliminated only
for small distances between the different areas.
9. The method of claim 5 where multiple look up tables are used to modify the small
2 contrast differences and modify the maximum contrast differences in the original
image as a function of the distance between the different areas.
10. The method of claim 9 where the slope of the look up tables are approximately
2 one-to-one for large distances and the slope of the look up tables is larger than
one-to-one for small distances between the different areas.
11. The method of claim 9 where the slope of the look up tables are less than one-to-
2 one for small distances between the different areas.
12. The method of claim 9 where there is a dead band close to the origin in the look
2 up table only for small distances between the different areas.

13. The method of claim 9 where the slope of the look up table is different for each
2 different distance between the different areas of the original image.

14. A method of changing the dynamic range of an original image to more closely
2 match the dynamic range of the medium used for a reproduction, comprising:
modifying the small contrast differences between different areas of the
4 original image as a function of the distance between the different areas;
limiting the maximum contrast differences between different areas of
6 the original image.

15. The method of claim 14 where the small contrast differences are preserved for
2 large distances between the different areas and the small contrast differences are
enhanced for small distances between the different areas.

16. The method of claim 14 where the small contrast differences are reduced for small
2 distances between the different areas.

17. The method of claim 14 where very small contrast differences are eliminated only
for small distances between the different areas.

18. The method of claim 14 where multiple look up tables are used to modify the
2 small contrast differences while limiting the maximum contrast differences in the
original image.

19. The method of claim 18 where the slope of the look up tables are approximately

2 one-to-one for large distances and the slope of the look up tables is larger than
one-to-one for small distances between the different areas.

20. The method of claim 18 where the slope of the look up tables are less than one-to-

2 one for small distances between the different areas.

21. The method of claim 18 where there is a dead band close to the origin in the look

2 up table only for small distances between the different areas.

22. The method of claim 18 where the slope of the look up table is different for each

2 different distance between the different areas of the original image.

23. A method of changing the dynamic range of an original image to more closely

2 match the dynamic range of the medium used for a reproduction, comprising:

preserving small contrast differences between different areas of the

4 original image;

limiting the maximum contrast differences between different areas of

6 the original image, where the limit is a function of the distance between the
different areas.

24. A method of improving an apparatus that sequentially determines a comparative

2 measure of the radiance information for providing a new intermediate value of

each such measure in response to the product of a ratio function of the radiance

4 information associated with each of a first named segmental area and with each of

a second named segmental area and of a like measure previously determined for
the second named segmental area, and determining a sequentially new value of
each said measure in response to a selectively weighted averaging of the new
intermediate value and a like measure previously determined for the first named
segmental area, comprising:

modifying the small contrast differences of the ratio function as a
function of the distance between the first named segmental area and the
second named segmental area;

limiting the maximum contrast differences of the ratio function, where
the limit is a function of the distance between the first named segmental area
and the second named segmental area.

25. The method of claim 24 where the small contrast differences are preserved for
large distances between the first and second named segmental areas and the small
contrast differences are enhanced for small distances between the first and second
named segmental areas.

26. The method of claim 24 where the small contrast differences are reduced for small
distances between the first and second named segmental areas.

27. The method of claim 24 where very small contrast differences are eliminated only
for small distances between the first and second named segmental areas.

28. The method of claim 24 where multiple look up tables are used to modify the
small contrast differences and modify the maximum contrast differences in the
original image as a function of the distance between the first and second named
segmental areas.

29. The method of claim 28 where the slope of the look up tables are approximately
one-to-one for large distances and the slope of the look up tables is larger than
one-to-one for small distances between the first and second named segmental
areas.

30. The method of claim 28 where the slope of the look up tables are less than one-to-
one for small distances between the first and second named segmental areas.

31. The method of claim 28 where there is a dead band close to the origin in the look
up table only for small distances between the first and second named segmental
areas.

32. The method of claim 28 where the slope of the look up table is different for each
different distance between the first and second named segmental areas.

33. A method of improving an apparatus that sequentially determines a comparative
measure of the radiance information for providing a new intermediate value of
each such measure in response to the product of a ratio function of the radiance
information associated with each of a first named segmental area and with each of

a second named segmental area and of a like measure previously determined for
the second named segmental area, and determining a sequentially new value of
each said measure in response to a selectively weighted averaging of the new
intermediate value and a like measure previously determined for the first named
segmental area, comprising:

modifying the small contrast differences of the ratio function as a
function of the distance between the first named segmental area and the
second named segmental area;

limiting the maximum contrast differences of the ratio function.

34. The method of claim 33 where the small contrast differences are preserved for

large distances between the first and second named segmental areas and the small
contrast differences are enhanced for small distances between the first and second
named segmental areas.

35. The method of claim 33 where the small contrast differences are reduced for small

distances between the first and second named segmental areas.

36. The method of claim 33 where very small contrast differences are eliminated only

for small distances between the first and second named segmental areas.

37. The method of claim 33 where multiple look up tables are used to modify the

small contrast differences and modify the maximum contrast differences in the
original image as a function of the distance between the first and second named
segmental areas.

38. The method of claim 37 where the slope of the look up tables are approximately
2 one-to-one for large distances and the slope of the look up tables is larger than
one-to-one for small distances between the first and second named segmental
4 areas.

39. The method of claim 37 where the slope of the look up tables are less than one-to-
2 one for small distances between the first and second named segmental areas.

40. The method of claim 37 where there is a dead band close to the origin in the look
2 up table only for small distances between the first and second named segmental
areas.

41. The method of claim 37 where the slope of the look up table is different for each
2 different distance between the first and second named segmental areas.